

Meeting Summary
Environmental Technology Verification Pilot - Wet Weather Flow
Technologies
Stakeholder Advisory Group

November 14, 2001
Salt Lake City, UT

(See [Attendance Record](#) for Participants)

John Schenk opened the meeting with self-introductions followed by a reading of the NSF Anti-Trust Statement. Mary Stinson then gave an overview of the Environmental Technology Verification (ETV) program. The evolution of the ETV Wet Weather Pilot into a Center was the focus of the conclusion of Mary's discussion. She stated that this is not a research program; the technology had to be ready to go to participate in the program. Mary stated we needed to look for ways to capitalize on other funding sources such as venture capital and in-kind contributions. Mary indicated that she was not sure how EPA's involvement in the program would develop, and that additional funding may be available from EPA in the future, but vendors will still be asked to increase future funding contribution compared to present allotments. Steve McLaughlin discussed the viability of venture capital as a funding source. Greg DeSantis from Hach Co. indicated that if venture capitalists want results before investing and you already have to be in production, you obviously couldn't use this avenue as a financial resource. John Schenk indicated that outside financial resources might be required to increase manufacturing capacity from approximately 10 units per month to 200 units per month.

John Schenk indicated that the protocols in the program are constantly evolving. Nate Baldwin asked how he could be testing if the protocol is not finalized. John Schenk indicated that the protocol could change subsequent to the testing being completed. This would allow improvements to the protocol, but could not invalidate verifications under the initial protocol.

John Schenk followed with an update on the Wet Weather Flow Pilot. To date, there are twenty-two vendors who have applied for verification of twenty-seven total units. Four tests have been completed, two on induction mixers and two on flowmeters. Five additional tests are in progress, one on a stormwater device in Green Bay, Wisconsin, one on a wet-weather model in Oregon, one on a CDS (Continuous Deflection Separation) unit in Kentucky and two on ultraviolet disinfection systems in New Jersey.

We then proceeded to discuss new technology area possibilities. John Schenk indicated that he recently became aware of how much of a problem exists discussed as in the western United States with the problem of erosion control and preventing sedimentation, and suggested the SAG consider that as an investigative area. John LaGorga from Moffa and Associates brought up looking into on-site chlorine generation from seawater and brine. Flow control was another possible area of interest.

The next topic of discussion was the possibility of collaborative efforts with other programs. The testing would have to be set up to satisfy the requirements of both the Water Quality Protection Center and "the other program." For instance, the state of New Hampshire is already required under a consent order to add further treatment, so they could contribute funding to the testing of Chemically Enhanced High Rate Separation in their state. Tom Maguire mentioned the Strategic Technical Environmental Program (STEP) as an avenue for possible collaboration. STEP includes state and university involvement in a two-step process: 1) The state participates in setting up the business plans and scope of testing; 2) The vendor is involved in verifying the performance claims.

Another program mentioned was the Technology Acceptance and Reciprocity Partnership (TARP) program. The goal of TARP is to establish reciprocity for test data acceptance among states. Different states have different regulatory requirements, but the goal is to satisfy the requirements of each respective state during the testing process. Another goal is to work with ETV during the setting up of TARP to insure that reciprocity of test data is possible between those two programs in addition to state reciprocity. Tom Maguire indicated these programs may accept ETV data, but ETV may not accept theirs. If ETV works with the program on the onset of the technology testing there may be a way to accept each other's data.

John Schenk mentioned that he had plans to talk with representatives from the Water Environment Research Foundation (WERF) to discuss possible collaborative efforts with that organization.

The meeting next segued into a discussion of "Stakeholder expectations." The big question posed by John Schenk was, "How do we do the testing we have lined up for the money we have?" As the Wet Weather Flow Pilot evolves into a Center, there will be a decrease in emphasis on EPA contributions. Source Water Protection and Wet Weather Flow will be working together as changes are made to become a Center. We discussed the acceptance of pre-existing data for verification purposes, in addition to piggy backing on other programs. John Schenk stated that we would need a new Quality Management Plan (QMP) for the Center; the policy compendium for ETV did not give specifics on this issue. He also suggested the possibility of the Center becoming a clearinghouse for data collection and dissemination.

In order to use existing data for verification, it would have to meet the following criteria:

- Must meet requirements of protocol and test plan
 - Lend itself to QA/QC
 - Ability to replicate testing
 - Data treatment and reporting documented
- Testing conditions clearly defined and appropriate
- Sufficient data available
- Data collected objectively and independent of vendor

Tom Maguire stated that raw, not normalized data, would be used. Nate Baldwin interjected that they would start testing in Houston, TX in a few months, and needed to be sure what test parameters were needed as outlined in protocol and test plan.

Tom Stevens stated there were a couple of issues of concern related to use of existing data for ETV purposes. At least in the area of decentralized treatment systems, varying levels of reliability and credibility exist. The database could actually qualify the data. The quality of the data needs to be classified.

Dave Woelkers from HydroCompliance Mgt., Inc. asked if the single site requirement was from the protocol development or EPA. John responded that it was from the protocol development; from a statistical viewpoint or would get too much variance from fifteen devices and one storm.

Genevieve Pelletier from BPR stated there were a lot of resources to put in to see if the data qualifies, a lot of time to determine. John Schenk then added that he had a lot of requests for a "data base." He indicated that it would be difficult to use for an entire verification; a more likely scenario would be to use the data to be more collaborative with other agencies. Steve McLaughlin stated that reciprocity only makes sense if it does not impact the integrity of our data. Steve said, " If we stretch the reciprocity and test locations, the less perception there will be that the data is accurate. How do we relieve that concern?" John Schenk stated that we must ask the Stakeholder Advisory Group (SAG) that question, and that it may not be a possibility. John also added that if we went to a data clearinghouse, we would have to have a way of developing subsequent verifications for other sites. This could be used with flowmeters; the laboratory data could be pre-developed or obtained using our protocol.

John Schenk presented that our present testing budget is \$2.3 million, and \$1.273 million has been spent. An additional \$1.07 million has been committed for testing.

Steve Barfuss and Denis Simard then presented the first of the Technology Panel Reports and Discussion. Steve presented a summary of testing on the ADS Model 3600 and Model 4000 Open Channel Flow Monitors at the Utah Water Research Lab in Logan, Utah. Denis Simard then presented the field-testing conducted on these units at Quebec Urban Community, Quebec. At the present time, Tim Dekker from Limno-Tech is providing a peer review of both the lab and field flowmeter reports.

After lunch, Donna Hackett presented a synopsis of testing on high rate separation devices. For Chemically Enhanced High Rate Separation, both USFilter/Actiflo and Ondeo Degremont have applied for verification. A Field Testing Organization (FTO) and test site have been selected, but there have been obstacles in proceeding to the testing stage of verification.

Two vendors have also signed up for verification under the Non-Chemically Enhanced High Rate Separation Device, CDS Technologies and Netting Trash Trap. The test set up has been completed and inspected for the CDS Technologies device at CSO 108 in

Louisville, KY in anticipation of 7 qualifying rain events (that will produce flow to the test unit greater than 34cfs). Completion of testing should occur by the end of 2001. Fresh Creek Technologies just signed up for verification a few days before this meeting, so details have not been finalized to date.

John Schenk then presented an overview of high rate disinfection technologies. The UV disinfection protocol drafted in 1999 was reworked to include encapsulated bacteria. Version 5 of the Protocol was completed this September, and contains a phased approach covering 3 aspects of testing: 1) A dose/response relationship; 2) Self-cleaning apparatus evaluation; and 3) Application in real wastewater systems using primary effluent from municipal treatment systems to simulate CSO.

Hydroqual is the Field Testing Organization (FTO) for UV disinfection verification. The site for testing is in Parsippany, NJ. Flow can be brought in from several locations, both filtered effluent and primary effluent; there are two large batch tanks where feed is prepared for the ultraviolet system. The discharge goes to activated sludge. The potable water is spiked with phage and instant coffee.

The WEDECO unit is ready to be installed now, and testing is scheduled to begin the first week in December. Draft reports covering all three test aspects will be available in late spring or early summer.

Interest has also been expressed in the verification of on-site chlorine generation systems. Two different approaches, one using seawater and the second using saltwater brine, have been suggested. NSF will be evaluating the possibility of including these in the ETV program.

Tom Stevens of NSF, manager of the Source Water Pilot, discussed a UV protocol also prepared by Hydroqual, Inc. The focus of this protocol is on secondary effluents and wastewater reuse. Along this line, the protocol has three basic elements to verify UV system operation and maintenance:

- Dose delivery verification-a bioassay method using clean water altered to achieve the required transmittance.
- Dose delivery reliability:
 - quartz surface maintenance
 - system reliability to assess response control, monitors and alarms
 - process control to assess ability of system to automatically monitor and/or adjust UV doses for changing conditions.
- UV design factor verification:
 - quartz fouling factor to determine long-term attenuation factor
 - lamp age factor to determine relative UV output after continuous normal operation for useful life as prescribed by lamp manufacturer

Next, John Schenk presented a review of the stormwater treatment issues that were discussed the day before in the Technology Panel meeting. The topics addressed by the Technology Panel related to the protocol/test plans include:

- Maintain the option of adding mass of sediment captured and PSD (particle size distribution) as parameters without making it a mandatory requirement.
- Use both Total Suspended Solids (TSS) and Suspended Sediment Concentration (SSC) Method C from ASTM D3977-97 as testing parameters.
- Do not establish a trash and debris addendum to the Stormwater Protocol for devices such as the Netting Trash Trap. Guidance on characterizing trash and debris and quantifying the amount removed by stormwater treatment devices needs to be addressed. The technology panel suggested possibly referencing existing studies, not adding a separate trash and debris addendum.
- Maintain detection limits as targets and not as requirement to provide more flexibility to the labs.

Draft test plans have been prepared for four vendors at the test site of Griffin, Ga. by the FTO, Integrated Science and Engineering, Inc.: 1) Vortech, Inc. 2) PBM of Georgia 3) Stormwater Management, Inc. and 4) BaySaver, Inc. Testing is on-going for Arkal Filtration, Inc. in Green Bay, WI. at St. Mary's Hospital; the FTO is Earth Tech, Inc. Testing will be underway shortly in St. Clair Shores, MI by the FTO of Environmental Consulting and Technology, Inc. for three vendors: 1) Stormwater Management, Inc. 2) Hydrocompliance Management, Inc. and 3) AbTech Industries, Inc.

Donna Hackett then gave a synopsis of the wet weather models technology area. The approach to testing this technology area was changed by the Technology Panel after the initial protocol was drafted by Limno-Tech. A decision was made to create two different protocols in a phased approach. The first would address models fitting under the classification of "hydrologic." A later protocol would be developed to address hydrodynamic models. In addition, a mock test plan and verification report was prepared by Limno-Tech as a dry run to test the workability of the hydrologic protocol. The hydrologic protocol and these two mock documents have been written and are available on the ETV Web-site.

One vendor has signed up for verification, and two other vendors have expressed interest in participating. Testing is underway for XP-Software's XPSWMM model. The testing organization is Crawford Engineering Associates, Inc. David Crawford presented a summary of the scope of testing that is planned for the XP-SWMM. The main components primarily used by the modeling community in the three main modes of XPSWMM will be the focus of testing. These modes are: 1) Runoff, 2) Sanitary and 3) Hydraulic. Testing will be completed by January /February 2002.

John Schenk adjourned the meeting and will contact the SAG for planning of the next meeting, possibly in Parsippany, NJ where testing is on going for UV Disinfection.

Attendance Record

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Thomas Maguire, Massachusetts DEP
Stan Ciuba, Washington Dept. of Ecology
Charles Calapa, Mass. Water Resources Authority
Kelly Williamson, AquaShield, Inc.
Lee Phillips, Integrated Science and Engineering, Inc.
Patricia Cazenias, FHA
Nate Baldwin, Stormceptor
Ed Fernbach, CDM
Pat Stevens, ADS
Steven McLaughlin, Maine DEP
Greg DeSantis, Hach Co./American Sigma
George Kurz, ADS
Hal Kimbrough, ADS
John LaGorga, Moffa, Brown and Caldwell
Denis Simard, BPR CSO
Genevieve Pelletier, BPR CSO
Philippe Topalian, US Filter/Kruger
Gene Cullie, ADS/Accusonic
David Rick, Hach Co./American Sigma
Richard Kaiser, Accusonic Technologies
David Crawford, Crawford Engineering and Associates
Bob Hewson, American Sigma
Phyl Kimball, Ultra Tech International
Gary Lippner, CDS Technologies
David Woelkers, HydroCompliance Mgt.
Mary Stinson, USEPA/NRMRL
Richard Koustas, USEPA/NRMRL
Gordon Bellen, NSF International
Tom Stevens, NSF International
Dale Scherger, Scherger Associates
John Schenk, NSF International
Kevin Smith, NSF International
Donna Hackett, NSF International
